



**U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION II**  
Emergency and Remedial Response Division  
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**MEMORANDUM**

**TO:** Steve Cipot - Project Manager  
ERRD/NJRB

**FROM:** Andy Crossland - Geologist  
ERRD/PSB/TST

**DATE:** Thursday, September 7, 2000

**SUBJECT:** Review of the *Work Plan to Evaluate Additional Technologies to Enhance On-Site Free Product Recovery*, L.E. Carpenter, Wharton, New Jersey.

In response to your request, I have reviewed the document listed above. If you have any questions concerning these comments, please feel free to call me at x4436.

The letter work plan which was submitted is more of a conceptual outline than a full work plan. It is lacking in virtually all of the details as to what field activities are proposed. EPA guidance on preparing a work plan should be consulted and all of the relevant information should be included. This is required to ensure both the quality of the data and that all parties can be satisfied that the work will achieve its goals. The present document does not even include information as to the number and location of samples, analyses or sampling methods; review of specifics of the plan will have to occur once an actual work plan is presented.

That being said, there are several general comments which may be made, as follows:

1. The document indicates that a one layer groundwater model will be used to evaluate alternatives. The utility of such a model is extremely limited and no convincing argument is made as to why such a simple approach will be adequate. A multiple layer model would be much more appropriate. Prior to its construction, however, the specific proposed inputs and their sources should be presented and agreed upon to ensure that all parties reach an early consensus on the framework of the model.
2. The bench scale test for the use of Fenton's Reagent chemistry is cited as entailing the addition of reagents to a beaker of soil. This will not produce results which allow the technology to be evaluated. Bench testing of this technology requires a full work plan and a very controlled environment in order to accurately determine the effectiveness of the oxidant. Among many other considerations, the process produces a significant amount of off gasses into which contaminants may partition. Conducting a bench test without carefully measuring all media involved will give very incomplete and potentially misleading results. Oxidation can also mobilize metals and the extent to which this occurs should be addressed



in the bench testing.

3. In figure 2, it appears that bench testing of chemical oxidation will proceed in parallel with the evaluation of other technologies. One of the decision points in evaluating the chemical oxidation is to determine if the rough cost estimate indicates that the technology would be too expensive. Typically, relative cost of different options are compared along with other factors to select a remedy. It seems inappropriate to evaluate a technology based solely on cost and without comparing the cost to that of other options.